

NAME: ADM NO: CLASS:
443/1

OPENER EXAMINATION: TERM 1 2024

AGRICULTURE

PAPER 1

FORM FOUR

TIME: 2 HOURS

INSTRUCTIONS:

This paper has three sections; A, B and C. Answer all questions in section A and B. In section C, answer two questions only.

SECTION A: 30 MARKS)

Answer all the questions from this section.

- 1. Name three branches of horticulture.** (1 ½ mks)
 - ❖ Pomology/fruits growing
 - ❖ Floriculture/flower growing
 - ❖ Olericulture/vegetable farming.

- 2. State four advantages of organic farming.** (2 mks)
 - ❖ Reduces pollution
 - ❖ Improves soil water retention
 - ❖ Improves soil texture
 - ❖ Provides food for soil microbes
 - ❖ Improves soil water infiltration

- 3. What is the importance of decomposes in agriculture.** (1 mk)
 - ❖ Causes rotting of organic matter in soil forming manure.

- 4. State the three basic economic concepts.** (1 ½ mks)
 - ❖ Opportunity cost
 - ❖ Scarcity
 - ❖ Preference and choice

- 5. (a) What is concession company.** (1mk)
 - ❖ This is a Tenure system in which the government rents land to a company for a specified period of time.

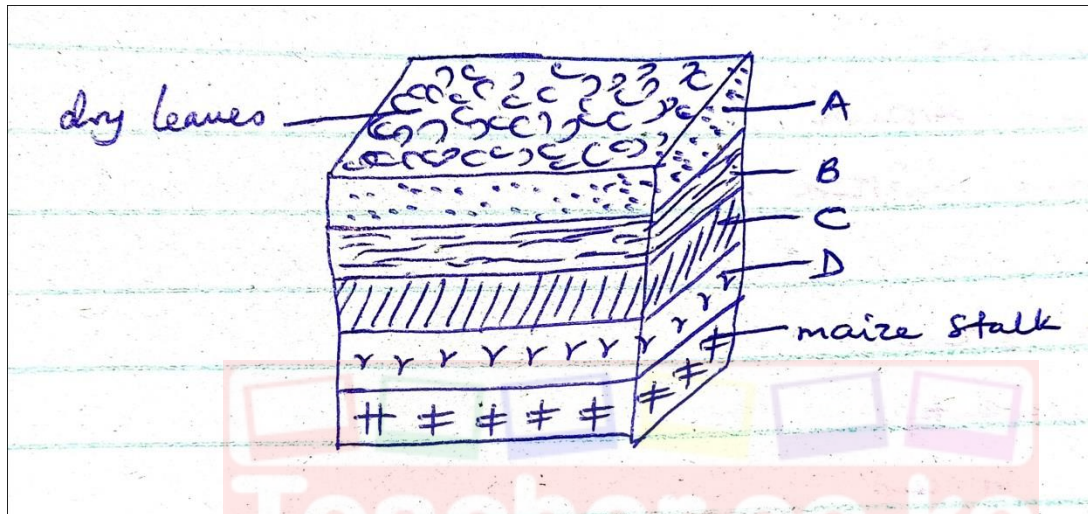
- (b) Give two examples of individual land tenure system.** (1 mk)
 - ❖ Owner operator
 - ❖ Plantation and concession
 - ❖ Landlordism/tenancy

6. (a) **Differentiate between solifluction and landslide.** (2 mks)
- ❖ Solifluction – Slow movement of materials down the slope.
 - ❖ Landslides – Fast movement of materials downslope.
- (b) **Name four types of landslides.** (2 mks)
- ❖ debris fall
 - ❖ Slump
 - ❖ Debris slide/slip
 - ❖ Rock slides
 - ❖ Rock fall
7. **Give three control measures of Blossom-end-rot disease.** (1 ½ mks)
- ❖ Regular watering
 - ❖ Application of calcium compounds in soil
 - ❖ Use of right amount of nitrogen
8. **How are crop pests classified according to the mode of feeding?** (2 mks)
- ❖ Those with biting and chewing mouth parts
 - ❖ Those with piercing and sucking mouth parts.
9. **State any three effects of diseases to crops.** (1 ½ mks)
- ❖ Lower yields. quantity
 - ❖ Lower quality
 - ❖ Increases cost of production.
10. **State six effects of weeds in a pasture crop.** (3 mks)
- ❖ Reduce life span of the pasture
 - ❖ Compete with pasture
 - ❖ Reduce quality of pasture
 - ❖ Reduce hecterage yield.
 - ❖ Some cause poisoning of livestock
 - ❖ Interfere with forage fertilization
11. **List two ways of classifying herbicides based on mode of action.** (1 mk)
- ❖ Contact herbicides
 - ❖ Systemic herbicides
12. **State four factors considered when grading tomatoes for food market.** (2 mks)
- ❖ Size of the fruits
 - ❖ Shape
 - ❖ Degree of ripeness
 - ❖ Damage on tomatoes

(b) Apart from the parts mentioned above, list down five other vegetative materials used for crop propagation. (2 ½ mks)

- | | | |
|--------------|---------|----------|
| ❖ Corms | Bulbils | Sett |
| ❖ Bulb | Splits | Rhizomes |
| ❖ Stem tuber | Vines | |

19. Study the diagram below and answer the questions that follow.



(i) What are the dimensions of the figure shown above? (1 mk)
 ❖ 1.2m x 1.2m x 1.2m

(ii) Name the parts labeled A, B, C and D. (2 mks)

- | | |
|--------------|---------------------------|
| A – Top soil | C – Organic manure |
| B – Ash | D – Grass, leaves, refuse |

(iii) State the importance of level A in this set up. (1 mk)
 ❖ Introduces micro-organisms necessary for decomposition.

(iv) State two factors considered when selecting a site for a compost pit. (1 mk)

- ❖ A well drained place
- ❖ Direction of prevailing wind
- ❖ Size of the farm
- ❖ Accessibility

20. A farmer with one hectare of land requires 40kg of N in his farm. He applied C.A.N. which costs Ksh 35 per kg. C.A.N. contains 20kg N.

(a) Calculate the amount of CAN the farmer requires. (2 mks)

$$20\text{kg N} = 100\text{kg CAN}$$

$$40\text{kg N} = ?$$

$$\frac{40 \times 100}{20} = 200\text{kg CAN}$$

(b) How much will a farmer with one and a half hectares spend to apply in his farm?

$$200\text{kg CAN} = 1 \text{ hec}$$

$$? = 1.5 \text{ hec}$$

$$\frac{200 \times 1.5}{1} = 300\text{kg CAN}$$

$$\therefore 1\text{kg CAN} = 35/-$$

$$300\text{kg CAN} = 300 \times 35 \\ = 10,500/-$$

(3 mks)

(c) List five characteristics of nitrogenous fertilizers.

(2 ½ mks)

- ❖ Highly soluble - Hygroscopic - Short residual effect
- ❖ Highly volatile - Scorching effect

(d) State the two methods employed during soil sampling.

(1 mk)

- ❖ Traverse
- ❖ Zigzag

SECTION C: (40 MARKS)

Answer any two questions from this section.

21. (a) **Discuss the importance of crop rotation to a farmer.**

- ❖ There is maximum utilization of nutrients: Different crops vary in their nutrient requirement in terms of type and depth of absorption.
- ❖ Helps in control of soil borne pests and diseases. Some pests and diseases specific to various crops are easily curbed by alternating crops from different families.
- ❖ Controls weeds: Weeds associated with certain crops are easily controlled e.g striga in grass family crops.
- ❖ Helps to improve soil fertility: Inclusion of a leguminous crop in the program helps to restore soil fertility.
- ❖ Improves soil structure: A grass ley when included in the rotation restores soil structure.
- ❖ Helps to control soil erosion: Crops with poor ground cover should be alternated with those having good cover to prevent/control soil erosion. (2 x 6)

(b) **Discuss the factors that determine harvesting of a crop.**

- ❖ Use or purpose of the crop: The intended aim of planting a crop is considered e.g. maize for silage making is harvest just before flowering.
- ❖ Concentration of the required chemicals: Guided by the part being harvested e.g in coffee, the ripe berries are the ones harvested.
- ❖ Market demand: Consumers preference should be considered e.g harvesting maize at green stage for fresh market.
- ❖ Weather conditions: Dry spell is most preferred for most crops to prevent losses.
- ❖ Market price and profit margin, harvesting can be delayed or done early depending on the trends in the market. (2 x 4)

22. (a) **Discuss the process of water treatment using a chemical treatment system**

- ❖ **Stage I: Filtration at water intake**
- ❖ Water is passed through a series of sieves of different mesh before entering the intake pipe.
- ❖ **Stage II: Softening of water**
- ❖ Water flows to a mixing chamber where Soda ash and aluminium sulphate are added in equal proportions.
- ❖ **State III: Coagulation and Sedimentation**
- ❖ Water moves to large open tanks where solid particles settle down. Air circulation in water also occurs to remove bad smells.
- ❖ **State IV: Filtration**
- ❖ Water is made to pass through a filtration tank with layers of different sizes of gravel and sand. This is to remove the remaining solid particles.
- ❖ **Stage V: Chlorination**
- ❖ In the chlorination tank, some small amount of chlorine is added depending on the amount of water to kill micro-organisms.
- ❖ **Stage VI: Storage**
- ❖ Treated water is stored in large tank before distribution to consumers. (2 x 6)

(b) **State and explain various methods used during land clearing.**

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- ❖ Tree felling: Involves cutting down trees.
- ❖ Burning: Fire is set on the vegetation. However, care should be taken to prevent spreading to unintended areas.
- ❖ Slashing: Done to small bushes and grasses
- ❖ Use of chemicals: Employs use of herbicides which kill weeds faster. (2 x 4)

23. (a) Explain various harmful effects of weeds.

- ❖ Lower quality of agricultural produce
- ❖ Some weeds are poisonous to man and livestock e.g thorn apple.
- ❖ Some weeds act as alternate host for insect pests and diseases
- ❖ Some weeds are parasitic to cultivated crops e.g witch weed in maize.
- ❖ Weeds compete with crops for nutrient, space, light and soil moisture.
- ❖ Some weeds are difficult to control e.g stinging nettle.
- ❖ Some block irrigation channels, affect oxygen levels in water.
- ❖ Some have allelopathic effect – suppress growth of crops
- ❖ Weeds lower quality of pastures
- ❖ Block navigation. (1 x 10)

(b) State ten cultural methods employed in pest control.

- ❖ Timely planting
- ❖ Timely harvesting
- ❖ Proper tillage
- ❖ Close season
- ❖ Trap cropping
- ❖ Crop rotation
- ❖ Planting resistant crop varieties
- ❖ Field hygiene
- ❖ Altering micro-climate
- ❖ Crop rotation
- ❖ Destruction of alternate hosts
- ❖ Use of clean planting materials
- ❖ Proper spacing
- ❖ Use of organic manure
- ❖ Irrigation (1 x 10)